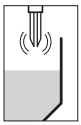
Operating Instructions

VEGAVIB 62

Cable shortening set



Vibration

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1 About this document

1.1 Function

This operating instructions manual has all the information you need for quick mounting and setup of a replacement module (cable shortening set). Please read this manual before you start setup.

1.2 Target group

This operating instructions manual is directed to trained personnel. The contents of this manual should be made available to these personnel and put into practice by them.

1.3 Symbolism used

Information, tip, note
This symbol indicates helpful additional information.

Caution: If this warning is ignored, faults or malfunctions can result.
Warning: If this warning is ignored, injury to persons and/or serious damage to the instrument can result.
Danger: If this warning is ignored, serious injury to persons and/or destruction of the instrument can result.

Ex applications
This symbol indicates special instructions for Ex applications.

- **List**
  The dot set in front indicates a list with no implied sequence.

→ **Action**
This arrow indicates a single action.

1 **Sequence**
Numbers set in front indicate successive steps in a procedure.

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2 For your safety

2.1 Authorised personnel

All operations described in this operating instructions manual must be carried out only by trained specialist personnel authorised by the plant operator.

During work on and with the device the required personal protection equipment must always be worn.

2.2 Appropriate use

The cable shortening set is used to shorten VEGAVIB sensors in cable version (VEGAVIB 62).

2.3 Warning about misuse

Inappropriate or incorrect use of the instrument can give rise to application-specific hazards, e.g. vessel overfill or damage to system components through incorrect mounting or adjustment.

2.4 Environmental instructions

Protection of the environment is one of our most important duties. That is why we have introduced an environment management system with the goal of continuously improving company environmental protection. The environment management system is certified according to DIN EN ISO 14001.

Please help us fulfil this obligation by observing the environmental instructions in this manual:

- Chapter "*Packaging, transport and storage*"
- Chapter "*Disposal*"

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3 Product description

3.1 Configuration

Scope of delivery

The scope of delivery encompasses:

- Cable shortening set
- Documentation
  - this operating instructions manual

3.2 Principle of operation

Area of application

The cable shortening set is a set of parts used to shorten a VEGAVIB 62 in cable version PUR (temperature range -40° … +150° C).

The cable shortening set can be used, e.g., when the sensor has to be guided through a narrow tube.

The cable shortening set must not be used if the sensor is deployed for solids detection in water.

Functional principle

The cable of the sensor consists of a suspension cable, the electrical cables and an outer insulation.

3.3 Packaging, transport and storage

Packaging

Your instrument was protected by packaging during transport. Its capacity to handle normal loads during transport is assured by a test according to DIN EN 24180.

The packaging of standard instruments consists of environment-friendly, recyclable cardboard. For special versions, PE foam or PE foil is also used. Dispose of the packaging material via specialised recycling companies.

Transport

Transport must be carried out under consideration of the notes on the transport packaging. Nonobservance of these instructions can cause damage to the device.

Transport inspection

The delivery must be checked for completeness and possible transit damage immediately at receipt. Ascertained transit damage or concealed defects must be appropriately dealt with.

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Storage

Up to the time of installation, the packages must be left closed and stored according to the orientation and storage markings on the outside.

Unless otherwise indicated, the packages must be stored only under the following conditions:

- Not in the open
- Dry and dust free
- Not exposed to corrosive media
- Protected against solar radiation
- Avoiding mechanical shock and vibration

Storage and transport temperature

- Storage and transport temperature see "*Supplement - Technical data - Ambient conditions*"
- Relative humidity 20 … 85 %

4 Mounting

4.1 General instructions

Necessary tools:

- Measuring tape/Yardstick
- Cleaning cloth
- Marker (permanent)
- Bolt cutter
- Flat wrench SW 24
- Pipe tongs
- Skinning tool
- Cable stripping knife
- Side cutters
- Crimping tool
- Allen key 2 mm
- Hot air blower
- Talcum/Grease

In addition:

- Bench vice with Aluminium or plastic protective jaws

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4.2 Mounting sequence

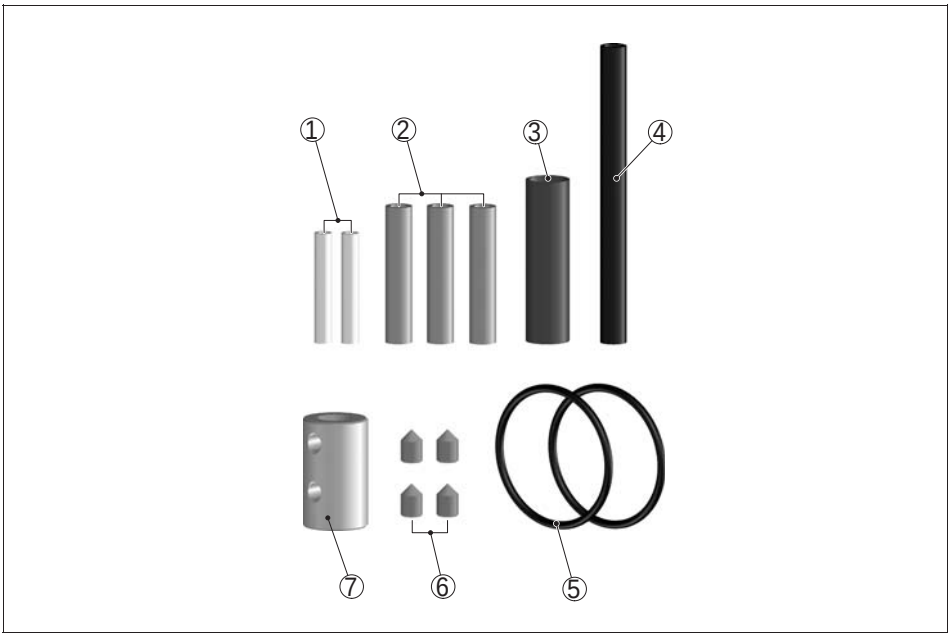

Fig. 1: Cable shortening set for VEGAVIB 62
1 Crimp connector yellow, 2 pieces, article no. 2.11444
2 Crimp connector red, 3 pieces, article no. 2.18710
3 Shrinking hose blue ø 8 x 30 mm, 1 pce., article no. 1.243
4 Shrinking hose black ø 3 x 55 mm, 1 pce., article no. 1.1207
5 O-rings ø 24 x 1.5 mm, 2 pcs., article no. 2.28877
6 Pins M4 x 6, 4 pcs., article no. 2.28894
7 Cable clamp ø 12 x 20 mm, 1 pce., article no. 2.28876

The numbers refer to the figures on the following pages.

Mounting

1 Interrupt power supply of the sensor and remove connection cable.

2 Dismount the sensor.

3 Clean cable (9) of the sensor.

4 Determine the new sensor length (L) according to the illustration with a measuring tape and mark with a marker.

Specifications on the sensor length (L) are available in the operating instructions of the sensor.

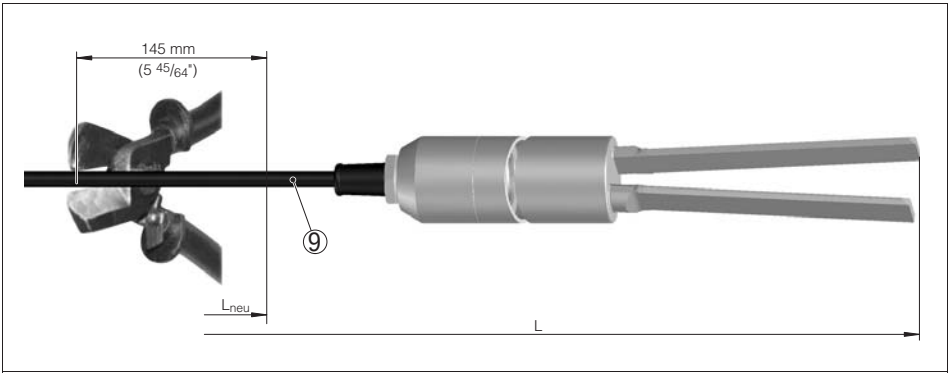

Fig. 2: Cut the cable with a bolt cutter
9 Cable

5 Cut the cable (9) with a bolt cutter approx. 145 mm (ca. 5.7 in) above the new sensor length (L).

6 Clamp the upper part of the oscillator (19) in a bench vice.

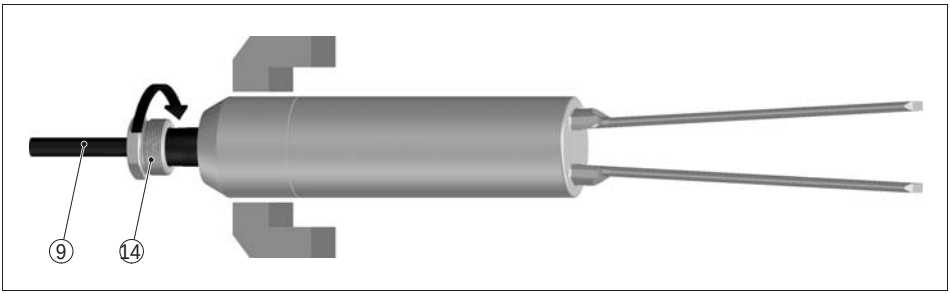

Fig. 3: Loosen the pressure screw
9 Cable
14 Pressure screw

7 Unwind pressure screw (14) with a fork wrench SW 24 so that the cable does not turn during the following disassembly.

8 Clamp the lower part of the oscillator (below the screwed separating position) in the bench vice.

Do not clamp on the fork tines.

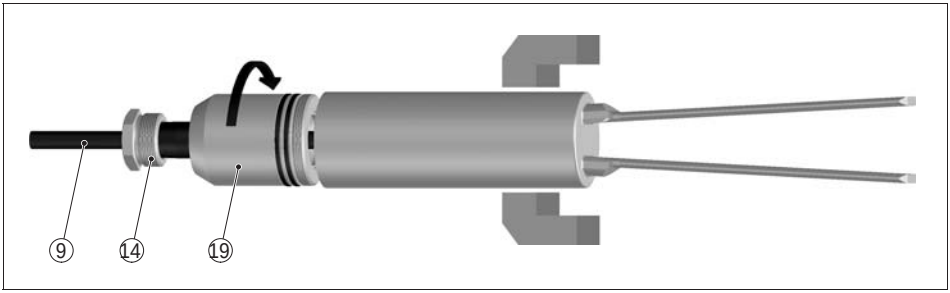

Fig. 4: Unwind the vibrating element
9 Cable
14 Pressure screw
19 Upper part of the oscillator

9 Loosen the upper part of the oscillator (19) with pipe tongs and unscrew it. Both threaded connections are secured with soluble locking paint.

Make sure that the cable (9) does not turn.

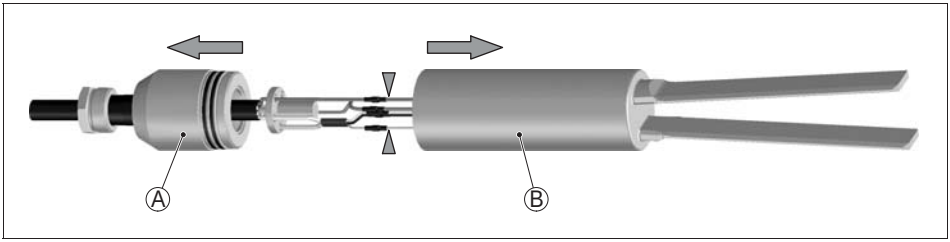

Fig. 5: Pull apart the vibrating element carefully - cut the wires
A Upper part of the oscillator
B Lower part of the oscillator

10 Stretch out the two parts (A and B) carefully.

Cut the wires directly on the crimping with side cutters (see arrows).

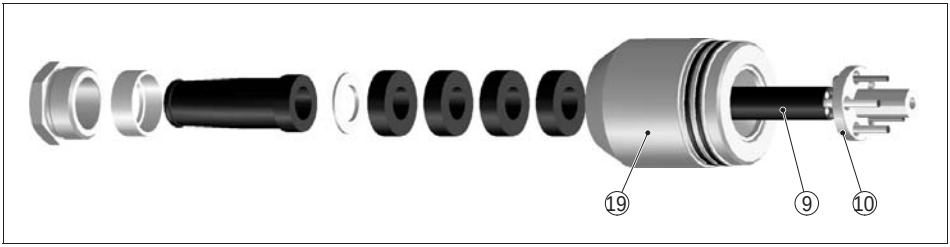

Fig. 6: Pull the cable out of the upper part of the oscillator
9 Cable
10 Perforated disc
19 Upper part of the oscillator

11 Pull the cut cable (9) out of the upper part of the oscillator (19).

Keep all parts for mounting.

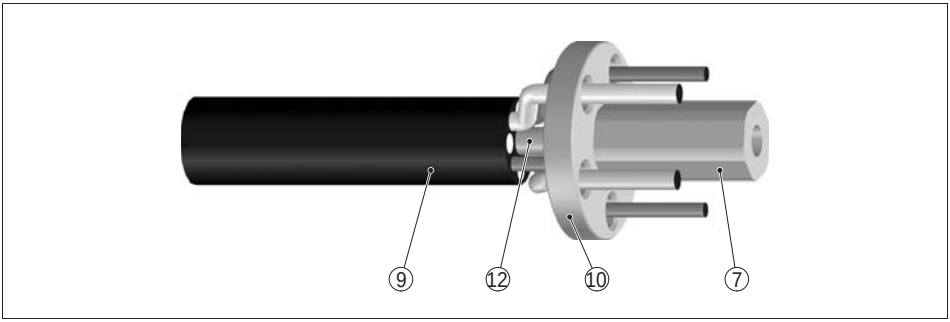

Fig. 7: Sever the suspension cable (12) with a bolt cutter
7 Cable clamp
9 Cable
10 Perforated disc
12 Suspension cable

12 Cut the suspension cable (12) with a bolt cutter and keep the perforated disc (10) for mounting.

13 Clean the remaining cable of the sensor (9) of oil and grease and rub it off with talcum.

The old cable crimping cannot be used anymore and must be correctly disposed of.

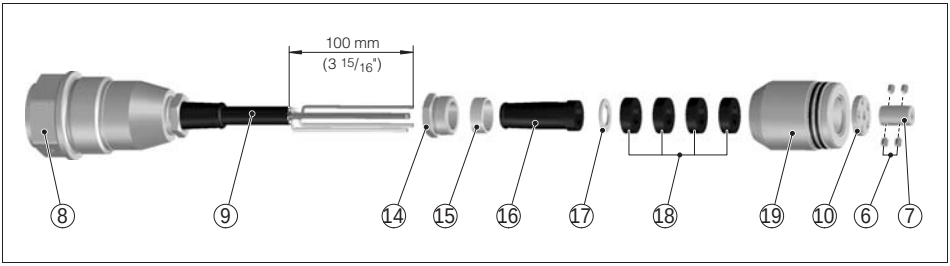

Fig. 8: Slide the parts onto the cable
6 Pins (4 pcs.)
7 Cable clamp
8 Mounting boss
9 Cable
10 Perforated disc
14 Pressure screw
15 Pressure ring
16 Rubber wrapping
17 Washer
18 Rubber rings (4 pcs.)
19 Upper part of the oscillator

14 Slide the individual parts (14, 15, 16, 17, 18, 19) according to the drawing onto the cable.

Make sure that the shoulder of the washer (17) points to the pressure ring.

15 Remove the outer insulation of the cable over a length of 100 mm (4 in).

16 Shorten the suspension cable (12) with a bolt cutter by 70 mm (2.8 in) (remaining length: 30 mm/1.2 in).

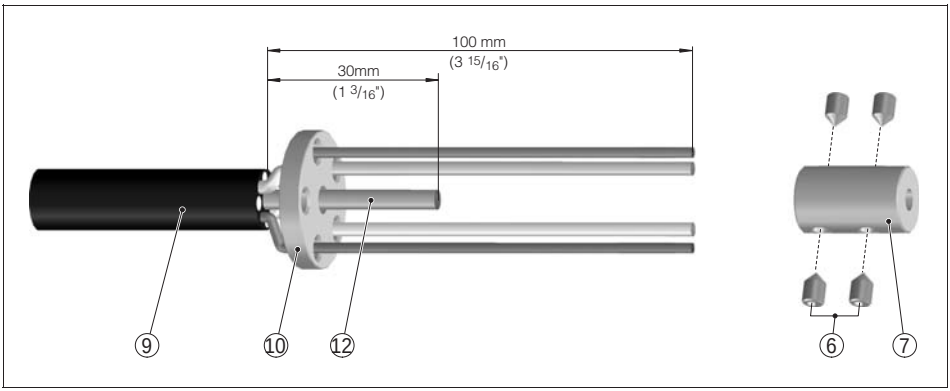

Fig. 9: Shorten the suspension cable - slide on the cable clamp
6 Pins
7 Cable clamp
10 Perforated disc
12 Suspension cable

17 Place the perforated disc (10) onto the bare suspension cable (12) and lead the 4 wires (green, yellow, red, green-yellow) separately through the outer holes of the perforated disc (10).

Do not lead the beige plastic cords (11) through the perforated disc.

18 Slide the cable clamp (7) flush onto the suspension cable (12). While doing this, turn the cable clamp in the direction of the cable twist to avoid fraying the wire rope. The chamfered side facilitates insertion of the cable.

19 Tighten the threaded pins (6) evenly on all sides with an Allen wrench 2 mm. The threaded pins should all be screwed in to the same depth in the cable clamp (approx. 3 Nm / 2.2 lbf ft).

20 Cut the beige plastic cords as short as possible with side cutters.

21 Remove the insulation of the screened green (GN) and yellow (YE) wires over a length of 60 mm (2.4 in). Slide the braiding slighly backward and open it a little with a sharp object in the back area.

Make sure that the wires do not get damaged.

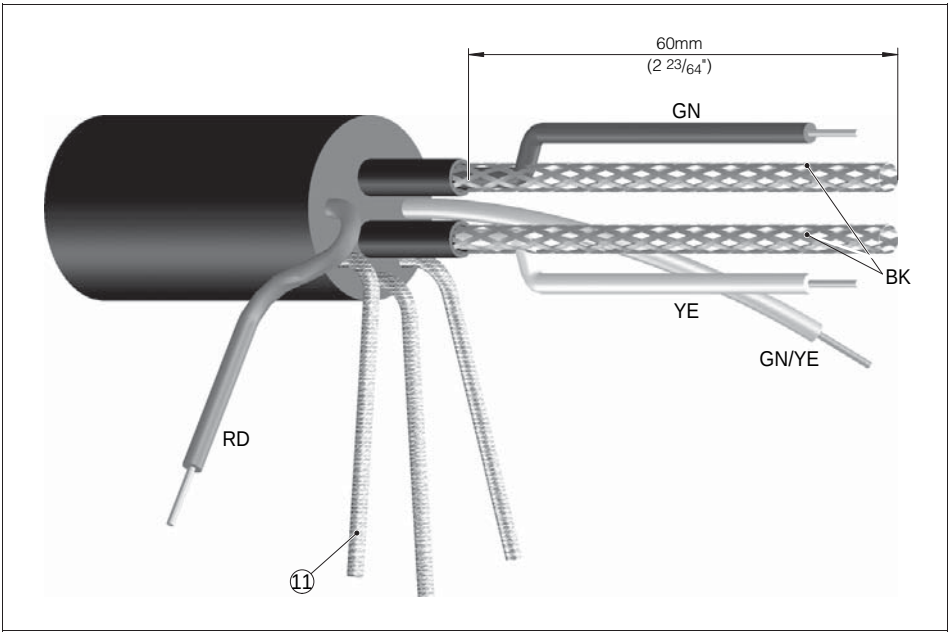

Fig. 10: Pull the cores out of the braiding
11 Plastic cords
GN Green
YE Yellow

22 Pull the yellow and green wires backward out of the braiding.

23 Exchange O-rings (5), grease thread and o-rings.

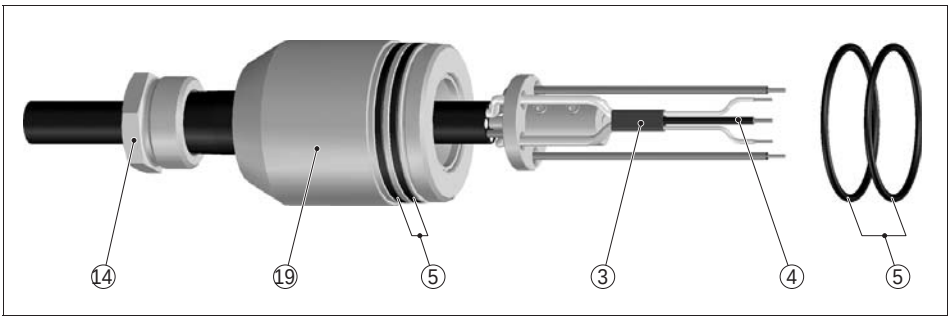

Fig. 11: Exchange O-rings - prepare the wires
3 Shrinking hose - blue
4 Shrinking hose - black
5 O-rings
14 Pressure screw
19 Upper part of the oscillator

24 Bring the shieldings of the wires (yellow) and (green) together and twist them. Insulate the twisted shielding with the black shrinking hose (4) according to the drawing. Shrink over the transition green-black-yellow in the insulated core with the blue shrinking hose (3).

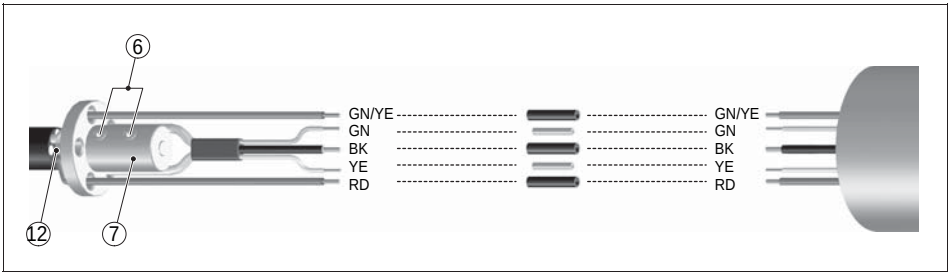

Fig. 12: Connect the cores
6 Pins
7 Cable clamp
12 Suspension cable
GN Green
BK Black
YE Yellow
RD Red
GN/YE Green-yellow

25 Strip off the insulation of the wires over a length of 5 mm (0.2 in) and connect according to drawing with crimp connectors and crimping tools.

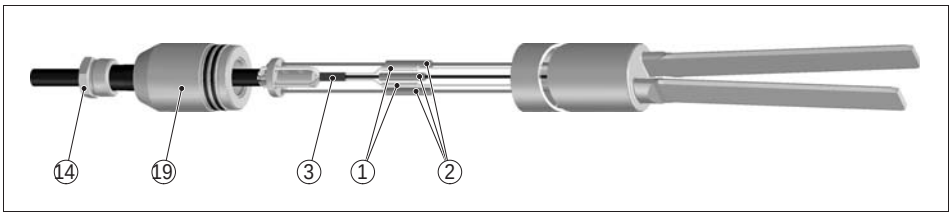

Fig. 13: Connect cores with crimping tools
1 Crimp connector - yellow (2 pcs.)
2 Crimp connector - red (3 pcs.)
3 Shrinking hose - blue
14 Pressure screw
19 Upper part of the oscillator

26 Assemble the parts of the vibrating element (A + B). Provide the thread with screw retention. Make sure that no wires get squashed.

The cable must not turn.

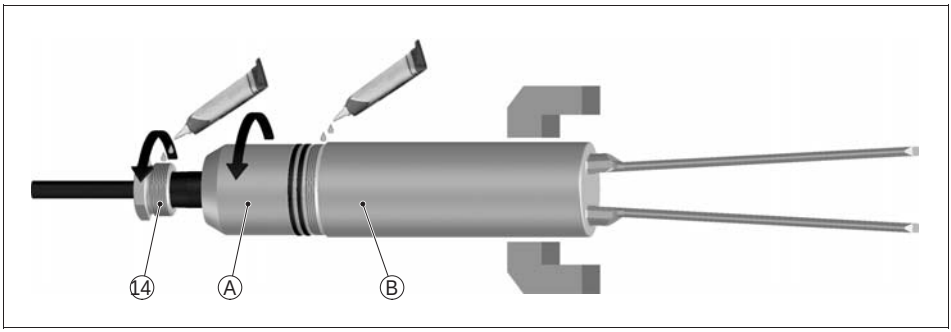

Fig. 14: Screw the vibrating element together
14 Pressure screw
A Upper part of the oscillator
B Lower part of the oscillator

27 Screw the parts of the vibrating element together tightly. To do this, clamp the lower part of the oscillator (B) into the bench vice and turn only the upper part of the oscillator (A). The cable must not turn.

28 Pull the cable (9) to the top and press the seal rings (18) and the washer (17) into the upper part of the oscillator (19).

29 Slide the pressure screw (14) and the pressure ring (15) onto the rubber jacket (16).

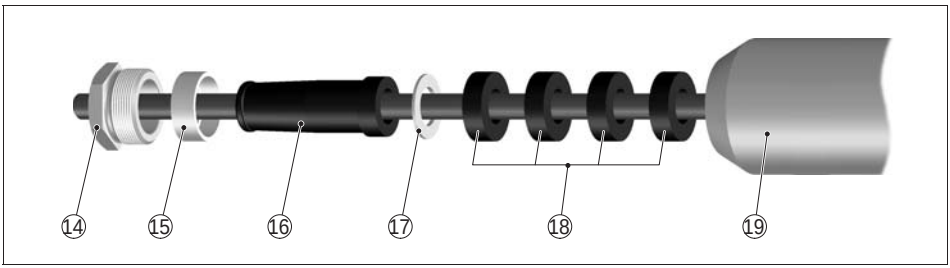

Fig. 15: Cable sealing
14 Pressure screw
15 Pressure ring
16 Rubber wrapping
17 Washer
18 Rubber rings
19 Upper part of the oscillator

30 Provide the pressure screw (14) with screw retention and screw it into the upper part of the oscillator (19).

31 Tighten the pressure screw (14) with the fork wrench SW 24 (approx. 6 Nm/4.4 lbf ft).

32 Check the length of the sensor.

33 Mount the sensor.

34 Connect the sensor according to the operating instructions of the sensor.

35 Check the correct switching function of the sensor.

5 Maintenance and fault rectification

5.1 Maintenance

When mounted correctly on the sensor, the cable shortening set is virtually maintenance free. There are no restrictions with regard to the specifications in the sensor documentation.

5.2 Instrument repair

Take note of the specifications in the sensor documentation.

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6 Dismounting

6.1 Dismounting steps

Note chapter "*Mounting*" and carry out the described steps in reverse order.

6.2 Disposal

The cable shortening set consists of materials which can be recycled by specialised recycling companies.

Materials: see chapter "*Technical data*"

Take note of the specifications in the sensor documentation.

7 Supplement

7.1 Technical data

General data

Materials, wetted parts	The cable shortening set does not alter the durability of the sensor. The materials used are listed in the operating instructions of the sensor.
Sensor length	0.3 … 80 m (1 … 262 ft)

Approvals

The respective sensor approvals are not qualified or restricted in any way when the cable shortening set is correctly applied.

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